AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A method for forming a multi-color, clustered dot-off-dot halftone cell, comprising:

defining a range of density values for pixels of a first color and assigning those density values to positions along a pixel growth curve;

defining a range of density values for pixels of a second color and assigning those density values to positions along the pixel growth curve; and

defining the pixel growth curve, such that a plurality of consecutively filled pixels form a cluster along the curve and such that pixels widely separately along the curve are also generally widely separated spatially within the halftone cell.

2. (Original) The method of claim 1, wherein the positions of the density values for pixels of the second color follow the positions of the density values for the pixels of the first color.

3. (Original) The method of claim 1, wherein a filling direction of the values for pixels of the second color along the pixel growth curve is a reverse of a filling direction of the values for the pixels of the first color along the pixel growth curve.

4. (Original) The method of claim 1, wherein at least one pixel value of the second color is located at the same position as at least one pixel value of the first color.

5. (Original) The method of claim 1, further comprising defining a range of density values for pixels of a third color and assigning those density values to positions along the pixel growth curve.

6. (Original) The method of claim 5, wherein the positions of the density values for pixels of the third color follow the positions of the density values for the pixels of the second color.

7. (Original) The method of claim 5, wherein a filling direction of the values for pixels of the third color along the pixel growth curve is a reverse of a filling direction of the values for the pixels of the second color along the pixel growth curve.

8. (Original) The method of claim 5, further comprising defining a range of density values for pixels of a fourth color and assigning those density values to positions along the pixel growth curve.

9. (Original) The method of claim 1, wherein the pixel growth curve comprises a space filling curve.

10. (Original) The method of claim 9, wherein the pixel growth curve comprises a Hilbert curve.

11. (Original) The method of claim 1, further comprising defining the range of density values such that pixels are added and removed along the pixel growth curve to alter the perceived density of halftone density patterns in accordance with predetermined upper and lower density threshold values.

12. (Original) The method of claim 1, further comprising determining a portion of the halftone cell that would not be covered by some set of colors.

13. (Original) The method of claim 12, wherein the set of the colors includes at least two of cyan, magenta and black.

14. (Original) The method of claim 12, further comprising separating the portion of the halftone cell that would not be covered by the set of colors into uncolored pixels to be used to separate the colors in the set of colors.

15. (Original) The method of claim 1, wherein the first color comprises black and further comprising positioning black at the start of the pixel growth curve and growing in the forward direction.

16. (Original) The method of claim 1, wherein the second color comprises magenta and further comprising growing magenta color in the backward direction.

17. (Original) The method of claim 6, wherein the first, second, third and fourth colors comprise black, cyan, magenta and yellow and further comprising positioning cyan, magenta and yellow such that they do not overlap black.

18. (Original) The method of claim 1, further comprising a plurality of halftone cells forming a halftone screen and wherein the pixel growth curve is defined such that when halftone cells are tiled, an end of one curve in one halftone cell connects to a beginning of a curve in an adjacent cell.

19. (Original) The method of claim 1, further comprising a plurality of halftone cells forming a halftone screen, wherein each halftone cell is shifted from an adjacent halftone cell a small distance along the pixel growth curve.

20. (Original) The method of claim 19, wherein each halftone cell in the halftone screen has a different shift distance from all other halftone cells in the halftone screen.

21. (Original) The method of claim 1, further comprising a plurality of halftone cells forming a halftone screen, wherein each row of halftone cells is offset horizontally by half a cell width.

22. (Original) The method of claim 1, wherein each pixel is divided into n subpixels.

23. (Original) The method of claim 22, wherein the division into subpixels is along only one dimension.

24. (Original) The method of claim 22, further comprising assigning a predetermined filling order to the subpixels of a halftone cell pixel.

25. (Original) The method of claim 22, wherein a pixel value determines the number of subpixels to be inked according to the color value.

26. (Original) The method of claim 22, further comprising determining the filling order in a direction consistent with the pixel growth curve.

27. (Currently Amended) A method for converting input image signals to binary image signals, with each input image signal having a pixel density value, comprising:

forming a multi-color, clustered dot-off-dot halftone cell by:

defining a range of density values for pixels of a first color and assigning those density values to positions along a pixel growth curve;

defining a range of density values for pixels of a second color and assigning those density values to positions along the pixel growth curve; and

defining the pixel growth curve, such that a plurality of consecutively filled pixels form a cluster along the curve and such that pixels widely separately along

the curve are also generally widely separated spatially within the halftone cell;

associating each input image signal with a relative position in the halftone cell having a set of threshold values, with each threshold value being associated with a position in the halftone cell; and

assigning a threshold value to each input image signal in accordance with the relative position of each threshold value in the halftone cell.